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EXAMINER	
KENNEDY, ADRIAN L	

ART UNIT	PAPER NUMBER
2121	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/560,585	VATCHKOV ET AL.	
	Examiner	Art Unit	
	Adrian L. Kennedy	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/13/05 and 12/18/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Examiner's Detailed Office Action

1. This Office Action is responsive to application **10/560,585**, filed **December 13, 2005**.

2. **Claims 1-20** will be examined.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 1-5, 7-13, 15-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Otte (USPN 6,314,413).

Regarding claims 1:

Otte teaches,

(Original) An information processor comprising:

detecting means for detecting (Column 2, Lines 1-10; "*collecting [...] the variables*") a multiplicity of combinations of n parameter values (C 2, L 1-10; "*combining the variables*"), where n is a natural number (C 3, L 43-45; "*the number n (the number of process variables)*"; The examiner asserts that it would have been obvious to one skilled in the art, to make the number n, taught in the invention of Otte a "natural number".), for each of a plurality of operation modes

in which an object functions, which values vary with operation (C 1, L 60-64; "*process variable changes which are necessary in order to move from the current state into a desired operating state*"); and

Self-Organizing Map creating means for creating a Self-Organizing Map by using detection data, obtained on the basis of the multiple combinations of parameter values detected by said detecting means, as learning data (C 2, L 1-10; "*realizing a topology-maintaining nonlinear projection of data from the variables onto a multidimensional self-organizing neural map (SOM)*");

wherein said Self-Organizing Map creating means creates a plurality of the Self-Organizing Maps, serving as individual separation models and corresponding one to each of the plurality of operation modes (C 1, L 60-64; "*process variable changes which are necessary in order to move from the current state into a desired operating state*"; and C 2, L 42-44; "*neural network in a state space of a plants*"; The examiner takes the position that the "separation models" representative of "operating modes" in applicant's claimed invention, are obvious in light of the SOMs taught in the invention of Otte. This position is based on the examiner's assertion that the SOMs are representative of the claimed "separation models" and correspond to each of the states (i.e. operation modes) in the invention of Otte).

Regarding claims 2:

Otte teaches,

(Original) An information processor wherein the detection data is 2n-dimensional data (C 3, L 20-22; "*n-dimensional vector space*") including the n parameter values (C 3, L 22-26; "*a vector having the values of the process variables*"), which have been detected and which indicate a momentary state of the object (C 3, L 22-26; "*values of the process variables at a time t_0*"), and n values that are obtained by differentiating the n parameter values which have been detected with respect to time and that indicate a variation in the momentary state of the object (C 3, L 22-26; "*values of the process variables at a time t_0*"; The examiner takes the position that the applicant's teaching of the "differentiating", would have been obvious over Otte teaching the determining of the values of "n process variables", which represent the state of the plant, at a particular time.).

Regarding claims 3:

Otte teaches,

(Original) An information processor, wherein

said detecting means detects (C 2, L 1-10; "*collecting [...] the variables*") the multiple combinations of n parameter values (C 2, L 1-10; "*combining the variables*"); and

said Self-Organizing Map creating means initially arranges a predetermined number of neurons (C 3, L 8-10; "*a self-organizing map (SOM) is understood to be a "self-organizing neural network", in which all the neurons are arranged*") at random (C 5, L 11-15; "*the developed map is once again provided with the input vectors in a random sequence*") in a 2n-dimensional space (C 3, L 20-22; "*n-*

dimensional vector space"), carries out training regarding a point of the detection data in the 2n-dimensional space as a learning data point, creates a Self-Organizing Map candidate regarding a neuron having a minimum distance to the learning data point as a winning neuron (C 5, L 22-25; "*this special condition is a minimum amount of distance between the current input vector and the weight vector of the individual neurons*"), and selects, from two or more of the Self-Organizing Map candidates obtained by carrying out the creating of a Self-Organizing Map candidate a number of times (C 5, L 18-20; "*winner-takes-all algorithm is a method in which only the particular neuron which best satisfies a specific condition is active*"), a Self- Organizing Map candidate which has a characteristic closest to that of the learning data as the Self-Organizing Map (C 5, L 15-16; "*the neuron whose weight vector is closest to the input vector wins*").

Regarding claims 4:

Otte teaches,

An information processor said Self-Organizing Map creating means calculates an average of distances of the winning neurons to the points in the learning data and a standard deviation of the distances of the winning neurons to the points in the learning data for each of the Self-Organizing Map candidates, and selects a Self-Organizing Map candidate the average and the standard deviation of which are both minimum as the Self-Organizing Map (The examiner takes the position that it would have been obvious to one

skilled in the art to take the broad distance taught in Otte and specifically claim that the distance is an "averages of distances" and that the distance is a "standard deviation".).

Regarding claims 5:

Otte teaches,

An information processor wherein, if there is no Self-Organizing Map candidate the average and the standard deviation of which are both minimum, said Self-Organizing Map creating means selects a Self-Organizing Map candidate the average of which is minimum as the Self-Organizing Map (The examiner takes the position that it would have been obvious to one skilled in the art to take the broad distance taught in Otte and specifically claim that the distance is an "averages of distances" and that the distance is a "standard deviation".).

Regarding claims 7:

Otte teaches,

(Currently amended) A state judging unit for judging a state of an object comprising:

a storage unit for storing individual separation models (The examiner asserts that the "storage unit" as claimed by the applicant is inherent in the invention of Otte. Otte teaching the creation and modification of his SOMs (i.e. separation models), which would not be possible unless the SOMs were stored in some form supports this position.) in the form of the plural of the Self-Organizing Maps, created one for each of the plurality of operation modes by an information processor;

said detecting means (C 2, L 1-10; "*collecting [...] the variables*"); and judging means for judging which operation mode an operation of the object corresponds to based on a relative distance between a detection data point in 2n dimension corresponding to detection data obtained by said detecting means in real time and a winning neuron in each of said plural Self-Organizing Maps (C 1, L 60-64; "*for each operating point at any particular time in time in the plant*" and "*process variable changes which are necessary in order to move from the current state into a desired operating state are prescribed*"; and C 2, L 1-10; "*projection of the data from the variables onto a multidimensional self-organizing neural map (SOM)*" and "*evaluating the variables in relation to one another using the neural map*" ; The examiner takes the position that the applicant's claiming of a "judging means" for determining an "operation mode" is obvious over Otte teaching the evaluating of variables that relate to specific operating states.).

Regarding claims 8:

Otte teaches,

(Original) A state judging unit wherein said detecting means calculates the relative distance by dividing the distance between the detection data point obtained by said detecting means in real time and the winning neuron in each said Self-Organizing Map by the average of distances of the wining neurons in the Self-Organizing Map to the learning data point used in the process of creating each said Self-Organizing Map in the information processor (The examiner takes the position that it would have been obvious

to one skilled in the art to take the broad distance taught in Otte and specifically claim that the distance is an "averages of distances" and that the distance is a "standard deviation". Additionally, the examiner takes the position that it would have been obvious to one skilled in the art to detect the data in "real time". Finally the examiner takes the position that the Applicant's claimed "relative distance" is obvious over the distance taught in the invention of Otte.).

Regarding claims 9:

Otte teaches,

(Currently amended) A state judging unit wherein said judging means judges that, if the relative distance of one of said plural Self-Organizing Maps is equal to or smaller than a predetermined threshold value, the detection data point conform with the one Self-Organizing Map, and that, if the relative distance of said Self-Organizing Map is larger than the threshold value, the detection data point does not conform with said one Self-Organizing Map (C 5, L 18-20; "*winner-takes-all algorithm is a method in which only the particular neuron which best satisfies a specific condition is active*" and C 5, L 22-25; "*this special condition is a minimum amount of distance between the current input vector and the weight vector of the individual neurons*"; The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or lack of

activation of a neuron in a Self Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.).

Regarding claims 10:

Otte teaches,

(Currently amended) A diagnostic unit, including a state judging unit, for diagnosing the object, wherein the object is a machine including a construction machine (C 1, L 56-59; "*a technical plant*"), and the plural operation modes represent a particular operation performed by said machine (C 1, L 60-64; "*desired operating state*").

Regarding claims 11:

Otte teaches,

(Original) An information processing method comprising the steps of:

detecting (C 2, L 1-10; "*collecting [...] the variables*") a multiplicity of combinations of n parameter values (C 2, L 1-10; "*combining the variables*"), where n is a natural number (C 3, L 43-45; "*the number n (the number of process variables)*"; The examiner asserts that it would have been obvious to one skilled in the art, to make the number n, taught in the invention of Otte a "natural number".), for each of a plurality of operation modes in which an object functions, which values vary with operation (C 1, L 60- 64; "*process variable changes which are necessary in order to move from the current state into a desired operating state*"); and

creating a Self-Organizing Map by using detection data, obtained on the basis of the multiple combinations of parameter values detected in said step of detecting, as learning data (C 2, L 1-10; "*realizing a topology-maintaining nonlinear projection of data from the variables onto a multidimensional self-organizing neural map (SOM)*");

wherein, in said step of Self-Organizing-Map creating, a plurality of the Self-Organizing Maps, serving as individual separation models, are created one for each of the plurality of operation modes (C 1, L 60-64; "*process variable changes which are necessary in order to move from the current state into a desired operating state*"; and C 2, L 42-44; "*neural network in a state space of a plants*";

The examiner takes the position that the "separation models" representative of "operating modes" in applicant's claimed invention, are obvious in light of the SOMs taught in the invention of Otte. This position is based on the examiner's assertion that the SOMs are representative of the claimed "separation models" and correspond to each of the states (i.e. operation modes) in the invention of Otte).

Regarding claims 12:

Otte teaches,

(Original) An information processing method, further comprising the step of, between said step of detecting and said step of Self-Organizing-Map creating, calculating n time-difference values by processing the n parameter values detected in said step of detecting (C 1, L 60-64; "*for each operating point at any particular time in time in the plant,*

information about the basic influencing variables is obtained"; The examiner takes the position that the applicant's claimed calculating of time difference values, would have been obvious over the process of collecting values a particular points in time taught by Otte.),

the Self-Organizing Map being created based on 2n-dimensional data (C 3, L 20-22; "*n-dimensional vector space*") including the n parameter values (C 3, L 22-26; "*a vector having the values of the process variables*"), which have been detected and which indicate a momentary state of the object (C 3, L 22-26; "*values of the process variables at a time* t_0"), and the n time-difference values which have been calculated using the n parameter values and which indicate a variation in the momentary stat of the object (C 3, L 22-26; "*values of the process variables at a time* t_0"; The examiner takes the position that the applicant's teaching of the "differentiating", would have been obvious over Otte teaching the determining of the values of "n process variables", which represent the state of the plant, at a particular time.).

Regarding claims 13:

Otte teaches,

(Currently amended) An information processing method wherein:

the multiple combinations of n parameter values (C 2, L 1-10; "*combining the variables*") are detected in said step of detecting (C 2, L 1-10; "*collecting [...] the variables*"); and

said step of Self-Organizing-Map includes the sub-steps of

creating a Self-Organizing Map candidate by initially arranging a predetermined number of neurons (C 3, L 8-10; "*a self-organizing map (SOM) is understood to be a "self-organizing neural network", in which all the neurons are arranged*") at random (C 5, L 11-15; "*the developed map is once again provided with the input vectors in a random sequence*") in a 2n-dimensional space (C 3, L 20-22; "*n-dimensional vector space*"), carrying out training regarding a point of the detection data in the 2n-dimensional space as a learning data point and creating a Self- Organizing Map candidate regarding a neuron having a minimum distance to the learning data point as a winning neuron (C 5, L 22-25; "*this special condition is a minimum amount of distance between the current input vector and the weight vector of the individual neurons*"), and

selecting, from two or more Self-Organizing Map candidates created by carrying out said step of creating a Self-Organizing Map candidate a number of times (C 5, L 18-20; "*winner-takes-all algorithm is a method in which only the particular neuron which best satisfies a specific condition is active*"), a Self-Organizing Map candidate which has a characteristic closest to that of the learning data as the Self- Organizing Map (C 5, L 15-16; "*the neuron whose weight vector is closest to the input vector wins*").

Regarding claims 15:

Otte teaches,

(Currently amended) An information processing method wherein:

when a Self-Organizing Map for a new operation mode of the object other than the plural operation modes is added (C 2, L 1-10; "*realizing a topology-maintaining nonlinear projection of data from the variables onto a multidimensional self-organizing neural map (SOM)*"),

the n parameter values are detected detecting (C 2, L 1-10; "*collecting [...] the variables*") by said step of detecting while the object is functioning in the new operation mode by said step of detecting (C 1, L 60-64; "*for each operating point at any particular time in time in the plant, information about the basic influencing variables is obtained*"); and

a Self-Organizing Map for the new operation mode is created (C 2, L 1-10; "*realizing a topology-maintaining nonlinear projection of data from the variables onto a multidimensional self-organizing neural map (SOM)*") regarding detection data based on a multiplicity of combinations of the parameter values that have been detected as learning data by said step of Self-Organizing-Map creating.

Regarding claims 16:

Otte teaches,

(Currently amended) A state judging method for judging which operation mode an operation of the object corresponds to using a plurality of Self-Organizing Maps, serving as individual separation models and created one for each of a plurality of operation

modes by an information processing method (C 1, L 60-64; "*process variable changes which are necessary in order to move from the current state into a desired operating state are prescribed*"; and C 2, L 1-10; "*realizing a topology-maintaining nonlinear projection of data from the variables onto a multidimensional self-organizing neural map (SOM)*"), comprising the step of:

detecting (C 2, L 1-10; "*collecting [...] the variables*") the n parameter values (C 2, L 1-10; "*combining the variables*") that vary with operation; and

judging which operation mode an operation of the object corresponds to based on a relative distance between a detection data point in a 2n-dimensional space corresponding to detection data obtained in real time in said step of detecting and a winning neuron in each of the plural Self-Organizing Maps (C 1, L 60-64; "*for each operating point at any particular time in time in the plant*" and "*process variable changes which are necessary in order to move from the current state into a desired operating state are prescribed*"; and C 2, L 1-10; "*projection of the data from the variables onto a multidimensional self-organizing neural map (SOM)*" and "*evaluating the variables in relation to one another using the neural map*" ;

The examiner takes the position that the applicant's claiming of a "judging means" for determining an "operation mode" is obvious over Otte teaching the evaluating of variables that relate to specific operating states.).

Regarding claims 17:

Otte teaches,

(Original) A state judging method, further comprising the step of, between said step of detecting and said step of judging, calculating n time-difference values by processing the n parameter values detected in said step of detecting (C 1, L 60-64; "*for each operating point at any particular time in time in the plant, information about the basic influencing variables is obtained*"; The examiner takes the position that the applicant's claimed calculating of time difference values, would have been obvious over the process of collecting values a particular points in time taught by Otte.),

the operation mode of the object is judged based on 2n-dimensional data (C 3, L 20-22; "*n-dimensional vector space*") including the n parameter values (C 3, L 22-26; "*a vector having the values of the process variables*"), which have been detected and which indicate a momentary state of the object (C 3, L 22-26; "*values of the process variables at a time* t_0"), and the n time-difference values, which have been processing the n parameter values detected in said step of detecting and which indicate a variation in the momentary state of the object (C 3, L 22-26; "*values of the process variables at a time* t_0"; The examiner takes the position that the applicant's teaching of the "differentiating", would have been obvious over Otte teaching the determining of the values of "n process variables", which represent the state of the plant, at a particular time.), in said step of judging.

Regarding claims 18:

Otte teaches,

(Original) A state judging method wherein, said step of judging comprising

obtaining the relative distance by dividing the distance between the detection data point obtained in real time in said step of detecting and the winning neuron in the Self- Organizing Map by the average of distances of the wining neurons in each said Self-Organizing Map to the learning data point used in the process of creating the Self-Organizing Map carried out by the information processor (The examiner takes the position that it would have been obvious to one skilled in the art to take the broad distance taught in Otte and specifically claim that the distance is an "averages of distances" and that the distance is a "standard deviation". Additionally, the examiner takes the position that it would have been obvious to one skilled in the art to detect the data in "real time". Finally the examiner takes the position that the Applicant's claimed "relative distance" is obvious over the distance taught in the invention of Otte.),

if the relative distance of each said the plural Self-Organizing Maps is equal to or smaller than a predetermined threshold value (C 5, L 18-20; "*winner-takes-all algorithm is a method in which only the particular neuron which best satisfies a specific condition is active*" and C 5, L 22-25; "*this special condition is a minimum amount of distance between the current input vector and the weight vector of the individual neurons*"; The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or

lack of activation of a neuron in a Self Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.),

judging the detection data point to conform with the last-named Self-Organizing Map (C 5, L 18-20; "*winner-takes-all algorithm is a method in which only the particular neuron which best satisfies a specific condition is active*" and C 5, L 22-25; "*this special condition is a minimum amount of distance between the current input vector and the weight vector of the individual neurons*"; The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or lack of activation of a neuron in a Self Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.), and

if the relative distance of each said Self-Organizing Map is larger than the threshold value (C 5, L 18-20; "*winner-takes-all algorithm is a method in which only the particular neuron which best satisfies a specific condition is active*" and C 5, L 22-25; "*this special condition is a minimum amount of distance between the current input vector and the weight vector of the individual neurons*"; The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or lack of activation of a neuron in a Self

Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.),

judging the detection data point not to conform with said one Self-Organizing Map (C 5, L 18-20; "*winner-takes-all algorithm is a method in which only the particular neuron which best satisfies a specific condition is active*" and C 5, L 22-25; "*this special condition is a minimum amount of distance between the current input vector and the weight vector of the individual neurons*"; The examiner takes the position that the applicant's teaching of the use of a "judging means" to determine whether a data point conforms with a Self Organizing Map or not, based on whether its distance is greater than or less than a value is obvious over Otte teaching the activation or lack of activation of a neuron in a Self Organizing Map based on whether or not the neuron is within or exceeds a certain distance value.).

Regarding claims 19:

Otte teaches,

(Currently amended) A diagnosing method, including a state judging method for diagnosing the object wherein the object is a machine including a construction machine (C 1, L 56-59; "*a technical plant*"), and the plural operation modes represent a particular operation performed by said machine (C 1, L 60-64; "*desired operating state*").

Regarding claims 20:

Otte teaches,

> (Original) A diagnosing method wherein, if there is no Self-Organizing Map conforming, the particular operation is judged to be an unknown mode or an abnormal mode in said step of judging (The examiner takes the position that it would have been obvious to one skilled in the art to diagnose an operation which is found not to be in the Self-Organizing Map as unknown or abnormal.).

5. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otte (USPN 6,314,413) in view of Ye et al. (USPN 6,477,469).

Regarding claims 6:

Ye et al. teaches,

> (Currently amended) An information processor wherein said Self-Organizing Map creating means deletes a neuron which has never become a winning neuron among neurons in the Self-Organizing Map that has been selected (C 8, L 51-53; "*a neuron is deleted, if it does not win*").
>
> It would have been obvious to one skilled in the art at the time of invention to combine the invention of Otte with the invention of Ye et al. for the purpose of making use of a self-organizing map (C 7, L 58-59).

Regarding claims 14:

Ye et al. teaches,

(Original) An information processing method wherein said step of Self-Organizing-Map creating further includes a sub-step of, after said sub-step of selecting a Self-Organizing Map, deleting an idling neuron which has never become a winning neuron among neurons in the Self-Organizing Map that has been selected (C 8, L 51-53; "*a neuron is deleted, if it does not win*").

It would have been obvious to one skilled in the art at the time of invention to combine the invention of Otte with the invention of Ye et al. for the purpose of making use of a self-organizing map (C 7, L 58-59).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Golub et al. (USPN 6,647,314 and USPubN 2003/0017481) is cited for his methods for classifying samples and ascertaining previously unknown classes. Agrafiotis et al. (USPubN 2002/0091655) is cited for system, method and computer program product for representing object relationships in a multidimensional space.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adrian L. Kennedy whose telephone number is (571) 270-1505. The examiner can normally be reached on Mon -Fri 8:30am-5pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALK

Anthony Knight
Supervisory Patent Examiner
Technology Center 2100